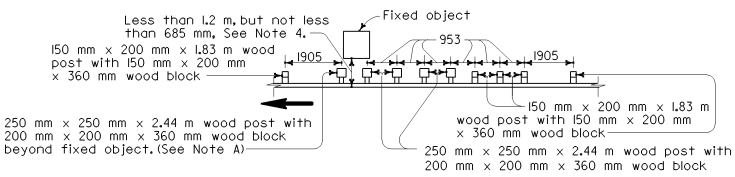
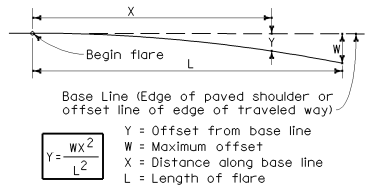


Note A. For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 250 mm x 250 mm x 2.44 m wood post with 200 mm x 200 mm x 360 mm wood blocks at 953 mm center to center spacing are to be used between fixed object(s).

STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

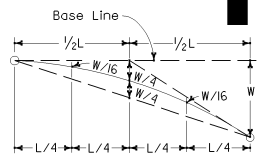
Use with Layout Types 16K or 16L Layouts where minimum clearance between the face of the guard railing and fixed object(s) is less than 1.2 m, but not less than 685 mm. See Note 4.



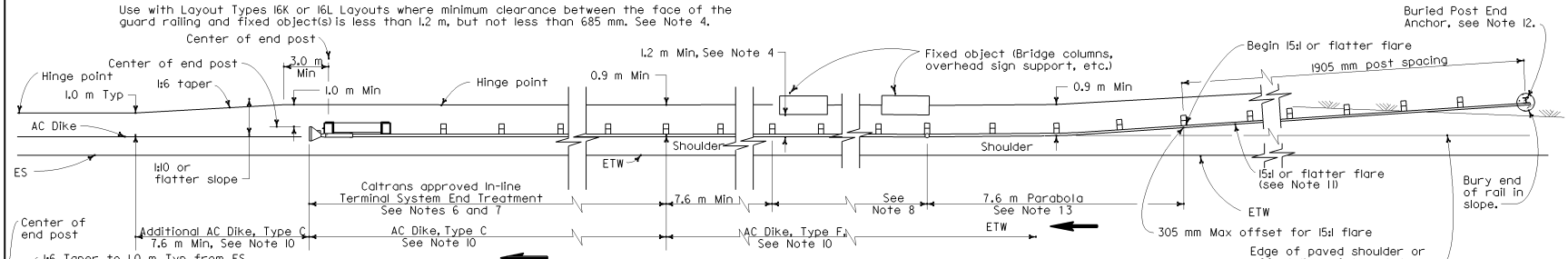
$Y = \frac{WX^2}{L^2}$

Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS

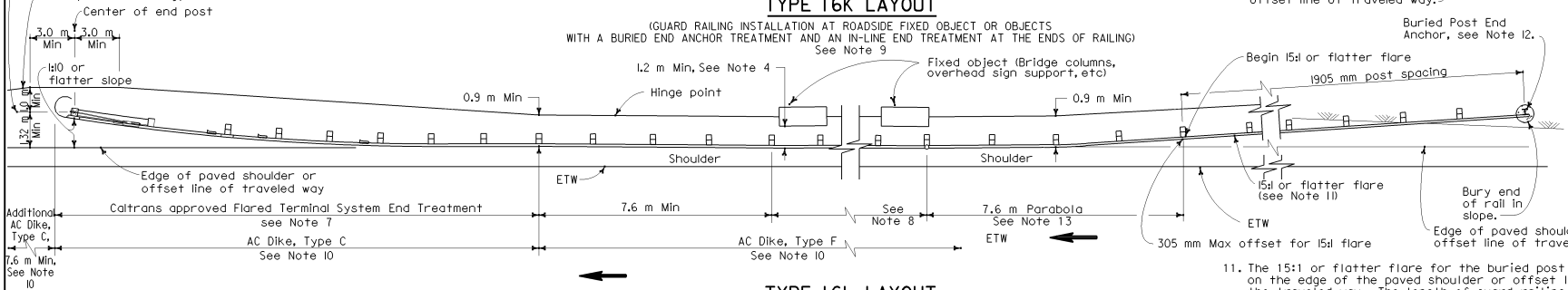


TYPICAL PARABOLIC LAYOUT



TYPE 16K LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AND AN IN-LINE END TREATMENT AT THE ENDS OF RAILING) See Note 9



TYPE 16L LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING) See Note 9

NOTES

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard railing post spacing to be 1905 mm center to center, except as otherwise noted.
3. Except as noted, line posts are 150 mm x 200 mm x 1.83 m wood with 150 mm x 200 mm x 360 mm wood blocks. MW 150 x 14 steel posts, 1.83 m in length, with 150 mm x 200 mm x 360 mm notched wood blocks or plastic blocks may be used for 150 mm x 200 mm x 1.83 mm wood posts with 150 mm x 200 mm x 360 mm wood blocks where applicable and when specified.
4. A 1.2 m minimum clearance is required between the face of the railing and the face of a fixed object located directly behind guard railing with post spacing at 1905 mm. Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 1.2 m, but not less than 685 mm. Where the clearance is less than 685 mm, a concrete wall or barrier should be constructed to shield the fixed object(s).
5. Direction of adjacent traffic indicated by ⟵ .
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system to be used will be shown on the Project Plans.
8. As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 3.8 m. Post spacing at 1905 mm, except as specified in Note 4.
9. Layout Types 16D through 16L, shown on the A77G Series of Standard Plans, are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic. See Railing Case 8 in Diagram No. 5 on Standard Plan A77D1.
10. Where placement of dike is required with guard railing, see Standard Plan A77C4 for dike positioning details.
11. The 15:1 or flatter flare for the buried post anchor is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 3.8 meters.
12. For details of Buried Post End Anchor details, see Standard Plan A77I2.
13. For typical flare offsets for 7.6 m length parabola with maximum offset of 305 mm, see Standard Plan A77E1.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

A77G8

Caltrans Metric

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Ellis K. Hirst
REGISTERED CIVIL ENGINEER
July 1, 2004
PLANS APPROVAL DATE
Ellis K. Hirst No. C17926 Exp. 6-30-05 CIVIL
REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA

To get to the Caltrans web site, go to: http://www.dot.ca.gov

08-09-04